

**Listing of Claims**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Please amend the claims as follows:

1. (Currently Amended) A method of increasing cytosolic  $\text{Ca}^{2+}$  levels in an airway epithelial cell comprising contacting P2X receptors on the cell with an effective amount of  $\text{Zn}^{2+}$  and one or more of the following molecules: ATP; ~~ivermectin~~;  $\alpha$ ,  $\beta$ -methylene-ATP; benzoyl-benzoyl-ATP;  $\text{ATP}\gamma\text{S}$ ; or AMPPNP, wherein there is a sustained elevation in cytosolic  $\text{Ca}^{2+}$  levels in the cell.
2. (Original) The method of claim 1, wherein the P2X receptors are not contacted with zincum gluconium.
3. (Original) The method of claim 1, wherein the  $\text{Zn}^{2+}$  is in the form of zinc chloride.
- 4-11. (Canceled).
12. (Previously Presented) The method of claim 1, further comprising
  - a. contacting the cell with an effective amount of ATP, or
  - b. reducing extracellular  $\text{Na}^+$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Na}^+$ , or
  - c. alkalizing extracellular fluid or contacting the cell with an alkaline solution containing  $\text{Zn}^{2+}$ , or
  - d. reducing extracellular  $\text{Mg}^{2+}$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Mg}^{2+}$ , or
  - e. increasing extracellular  $\text{Ca}^{2+}$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with high  $\text{Ca}^{2+}$ , or
  - f. any combination of steps a-e.

13. (Currently Amended) A method of treating an airway disease in a subject, comprising contacting epithelial cells in the trachea, bronchi, bronchioles, or alveoli of a subject with an effective amount of  $\text{Zn}^{2+}$  and one or more of the following molecules: ATP; ~~ivermectin~~;  $\alpha$ ,  $\beta$ -methylene-ATP; benzoyl-benzoyl-ATP;  $\text{ATP}\gamma\text{S}$ ; or AMPPNP, wherein there is a sustained elevation in cytosolic  $\text{Ca}^{2+}$  levels in the cell.

14-20. (Canceled).

21. (Previously Presented) The method of claim 13, further comprising

- (a) contacting the cell with an effective amount of ATP, or
- (b) reducing extracellular  $\text{Na}^+$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Na}^+$ , or
- (c) alkalinizing extracellular fluid or contacting the cell with an alkaline solution containing  $\text{Zn}^{2+}$ , or
- (d) reducing extracellular  $\text{Mg}^{2+}$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Mg}^{2+}$ , or
- (e) increasing extracellular  $\text{Ca}^{2+}$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with high  $\text{Ca}^{2+}$ , or
- (f) any combination of steps a-e.

22. (Currently Amended) The method of claim 13, wherein the contacting step is performed with  $\text{Zn}^{2+}$ ; and ATP; ~~ivermectin~~;  $\alpha$ ,  $\beta$ -methylene-ATP; benzoyl-benzoyl-ATP;  $\text{ATP}\gamma\text{S}$ ; or AMPPNP-containing inhalant, nebulization, aerosol, or instillant.

23. (Previously Presented) The method of claim 13, wherein the  $\text{Zn}^{2+}$  is in the form of zinc chloride ( $\text{ZnCl}_2$ ).

24-36. (Canceled).

37. (Withdrawn) A composition comprising zinc and a saline solution, wherein the saline solution has low  $\text{Na}^+$ , is enriched with  $\text{Ca}^{2+}$ , and is modified to an alkaline pH.
38. (Withdrawn) A nasal spray, nebulizer, or aerosol inhaler comprising the composition of claim 37.
- 39-40. (Canceled).
41. (Withdrawn) The composition of claim 37, wherein the zinc is not in the form of zincum gluconium.
42. (Withdrawn) A method of treating a bacterial infection in a subject, comprising administering to the subject the composition of claim 37.
43. (Withdrawn) A method of reducing inflammation in a subject, comprising administering to the subject the composition of claim 37.
44. (Withdrawn) A method of treating polycystic kidney disease in a subject, comprising administering to the subject the composition of claim 37.
45. (Withdrawn) A method of treating a subject with an endocrine disorder, comprising administering to the subject the composition of claim 37.
- 46-47. (Canceled).
48. (Withdrawn) A method of screening for an airway epithelial  $\text{Ca}^{2+}$  entry channel agonist, comprising
- (a) contacting an airway epithelial cell with a test compound;
  - (b) detecting calcium levels in the airway epithelial cell; and

(c) screening for a sustained elevation in calcium as compared to a control level, indicating an airway epithelial  $\text{Ca}^{2+}$  entry channel agonist.

49. (Withdrawn) The method of claim 48, wherein the  $\text{Ca}^{2+}$  entry channel is selected from the group consisting of a P2X purinergic receptor  $\text{Ca}^{2+}$  entry channel, a transient receptor potential (TRP)  $\text{Ca}^{2+}$  entry channel, a store-operated  $\text{Ca}^{2+}$  (SOC) entry channel, a calcium release activated channel (ICRAC), and a CAT-1  $\text{Ca}^{2+}$  entry channel.

50. (Withdrawn) The method of claim 48 further comprising the step of:  
(d) screening for reversibility of response by removing the agonist during the assay.

51. (Withdrawn) The method of claim 50, further comprising the step of:  
(e) screening for dependence upon extracellular  $\text{Ca}^{2+}$  by repeating the assay in a solution devoid of extracellular  $\text{Ca}^{2+}$ .

52. (Withdrawn) The method of claim 48, wherein the airway epithelial cell is a cystic fibrosis airway epithelial cell.

53-57. (Canceled).

58. (Withdrawn) The method of claim 48, wherein the airway epithelial cell is in a solution containing an effective amount of ATP.

59-60. (Canceled).

61. (Withdrawn) The method of claim 48, wherein the airway epithelial cell is in a solution containing an effective amount of zinc.

62-63. (Canceled).

64. (Withdrawn) The method of claim 48, wherein the airway epithelial cell is in an alkaline solution.

65-141. (Canceled).

142. (Previously Presented) The method of claim 1, further comprising reducing the cell's extracellular  $\text{Na}^+$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Na}^+$ .

143. (Previously Presented) The method of claim 1 or claim 142, further comprising reducing the cell's extracellular  $\text{Mg}^{2+}$  or contacting the cell with a  $\text{Zn}^{2+}$  containing solution with low  $\text{Mg}^{2+}$ .

144. (Previously Presented) The method of claim 1, further comprising contacting the cell with an effective amount of ATP; reducing the cell's extracellular  $\text{Na}^+$ ; alkalinizing the cell's extracellular fluid; reducing the cell's extracellular  $\text{Mg}^{2+}$ ; and increasing the cell's extracellular  $\text{Ca}^{2+}$ .

145. (Previously Presented) The method of claim 142, wherein the cell's extracellular  $\text{Na}^+$  is reduced by using an effective amount of amiloride.

146. (Previously Presented) The method of claim 142, wherein the cell's extracellular  $\text{Na}^+$  is reduced by substituting  $\text{Na}^+$  with N-methyl-D-glucamine (NMDG).